

ATTACHMENT 11

J- 584

UTILITY TESTING LABORATORY

875 SO. CHESTNUT ST.
P. O. BOX 25005
SALT LAKE CITY, UTAH 84125
PHONE: (801) 973-8305
FAX: (801) 973-8333

September 13, 1994

Pro Environmental Services, Inc.
150 South Arthur, Suite 219
Pocatello, ID 83204

Attention: Ms. Cheri Honas

Subject: TPH Testing - Proj. - UST FY 94 #9322

Sample Collected: 06 Sept 1994

Sample Received: 08 Sept 1994

TOTAL PETROLEUM HYDROCARBONS (TPH) - GASOLINE & DIESEL
(MODIFIED CALIFORNIA METHOD 8015)
METHOD DETECTION LIMITS: 10 ppm SOIL, .5 ppm WATER

<u>Test No.</u>	<u>SOIL SAMPLE</u>	<u>Test Results mg/Kg, mg/L (ppm)</u>
09-08-94-04	200 SW 3' DEEP IN TRENCH CFA60994TPH11	< 10 mg/Kg Gasoline < 10 mg/Kg Diesel < 10 mg/Kg TPH
Date Analyzed:		
09 SEPT 1994		

<u>Test No.</u>	<u>SOIL SAMPLE</u>	<u>Test Results mg/Kg, mg/L (ppm)</u>
09-08-94-05	AFTER BLASTING-MIDDLE PBF74294TPHM	< 10 mg/Kg Gasoline 347 mg/Kg Diesel 347 mg/Kg TPH
Date Analyzed:		
08 SEPT 1994		

<u>Test No.</u>	<u>SOIL SAMPLE</u>	<u>Test Results mg/Kg, mg/L (ppm)</u>
09-08-94-06	AFTER BLASTING-SIDE PBF74294TPHS	< 10 mg/Kg Gasoline 5,370 mg/Kg Diesel 5,370 mg/Kg TPH
Date Analyzed:		
08 SEPT 1994		

<u>Test No.</u>	<u>SOIL SAMPLE</u>	<u>Test Results mg/Kg, mg/L (ppm)</u>
09-08-94-07	CORNER OF OREGON LANSING CFASTOCKPILE94TPH	< 10 mg/Kg Gasoline < 10 mg/Kg Diesel < 10 mg/Kg TPH
Date Analyzed:		
08 SEPT 1994		

UST
PBF-742

ATTACHMENT 12



Department of Energy

Idaho Operations Office
850 Energy Drive
Idaho Falls, Idaho 83401-1563

September 22, 1994

Ms. Catherine Reno
Idaho Department of Health & Welfare
Division of Environmental Quality
900 North Skyline
Idaho Falls, Idaho 83402

SUBJECT: Release of Petroleum Products from PBF 752 and PBF 742 - (OPE-SP-94-322)

Dear Ms. Reno:

Pursuant to our conversations of September 8 and 15, 1994, this letter transmits sampling data from soil surrounding two underground heating oil storage tanks designated as Power Burst Facility (PBF) 742 and PBF 752. It is the intent of the Department of Energy (DOE) with concurrence from the Idaho Department of Health and Welfare, Division of Environmental Quality (IDHW-DEQ), and the Environmental Protection Agency (EPA), to place these releases under the auspices of the Federal Facility Agreement/Consent Order (FFA/CO). This agreement implements the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process at the Idaho National Engineering Laboratory (INEL). Further site characterization and remediation (if required) will fully comply with the FFA/CO and CERCLA requirements.

Initial discovery of the releases occurred during the removal of these tanks. In compliance with Idaho Administrative Procedures Act (IDAPA) 16.01.02.850.03, personnel from MK-Ferguson notified the IDHW-DEQ of the releases. Subsequent sampling of the contaminated media has revealed total petroleum hydrocarbon levels in excess of 22,000 and 5,000 ppm respectively. All contaminated dirt and gravel has been removed from the excavation site and will be landfarmed at the INEL landfill in accordance with company procedure and State requirements.

The DOE will continue to notify your office immediately upon discovery of release of petroleum products or hazardous materials that have the potential to contaminate waters of the State of Idaho and to comply fully with IDAPA 16.01.02.850-852.

AUG 30 '94 10:01 RITER/HUSBAND 801-973-8333

P.2

UTILITY TESTING LABORATORY

875 SO. CHESTNUT ST.
P. O. BOX 25005
SALT LAKE CITY, UTAH 84125
PHONE: (801) 973-8305
FAX: (801) 973-8333

August 30, 1994

PBF 752

Pro Environmental Services, Inc.
150 South Arthur, Suite 219
Pocatello, ID 83204

Attention: Ms. Cheryl Honas

Subject: TPH Testing - Proj. - UST FY94

Sample Collected: 24 Aug 1994

Sample Received: 29 Aug 1994

TOTAL PETROLEUM HYDROCARBONS (TPH) - GASOLINE & DIESEL
(MODIFIED CALIFORNIA METHOD 8015)
METHOD DETECTION LIMITS: 10 ppm SOIL, 5 ppm WATER

Test No.
08-29-94-10

SOIL SAMPLE
SOUTH END
PBF75294TPHS

Date Analyzed:
30 AUG 1994

Test Results mg/Kg, mg/L (ppm)
< 1,000 mg/Kg Gasoline
22,500 mg/Kg Diesel
22,500 mg/Kg TPH

Test No.
08-29-94-11

SOIL SAMPLE
MIDDLE
PBF75294TPHM

Date Analyzed:
29 AUG 1994

Test Results mg/Kg, mg/L (ppm)
< 100 mg/Kg Gasoline
2,670 mg/Kg Diesel
2,670 mg/Kg TPH


Test No.
08-29-94-12

SOIL SAMPLE
NORTH END
PBF75294TPHN

Date Analyzed:
30 AUG 1994

Test Results mg/Kg, mg/L (ppm)
< 1,000 mg/Kg Gasoline
17,600 mg/Kg Diesel
17,600 mg/Kg TPH

UTILITY TESTING LABORATORY



D. M. Thorsen

Pro commenta!

W-K-ENVIRONMENTAL SERVICES
A SERVICE OF W-K-TECHNICAL SERVICES

CHAIN OF CUSTODY RECORD

7220 Park Blvd., P.O. Box 70
Beacon, Idaho 83707
(208) 368-6871

[illegible]

ATTACHMENT 13

ATTACHMENT 14



MK-FERGUSON OF IDAHO COMPANY

A MORRISON KNUDSEN COMPANY

X INITIAL ☐ INTERIM ☐ FINAL

ES&H INCIDENT REPORT

1. Critique Meeting: PBF-742-1 2. Date: 20 July 1994 3. Time: 3:15 PM4. Critique Title: FY-94 UST Removal/Replacement PBF 742 Tank Leakage During Removal

5. Attendees: See Attached

6. Reference Occurrence Report: TBD

7. Date/Time of Accident/Incident: 15 July 1994 at 2:45 PM at building PER-601

8. Description of Accident/Incident: During removal of tank from excavation, a leakage occurred due to the integrity of the tank being deteriorated. The estimated leakage <5 gallons. This tank was 40 years old, single wall steel construction with no cathodic protection.

In addition, the soil immediately beneath the tank was found to be saturated, indicating a pre-existing condition.

9. Immediate Corrective Action: Leaked product was immediately contained on poly and workforce redirected until further investigation and direction.

All required parties were notified promptly (DOE, EG&G, MK-FIC)

Soil samples were taken.

10. Evaluation of Immediate Corrective Action: MK-FIC personnel responded immediately and contained product appropriately.

11. Cause Assessment: The tank was 40 years old, single steel wall construction with no cathodic protection and had deteriorated.

12. Corrective Action to Preclude Recurrence: All remaining UST tanks to be removed will be tipped while in the hole and product in tanks will be further pumped to empty before inerting and removal.

13. Justification for Restart of Work: Removal and containment on poly of saturated soil will be done. Clean soil samples will be taken of the excavation area and must receive an acceptable response before proceeding with new tank installation.

14. Support Documentation (Attached): Contract documents specs, summary of work, MK-FIC Safety Report dated 15 July 1994 and attendance sheet.

The above represents the results of investigation of an ES&H incident by MK-FIC to identify the root cause of the subject incident. The work activities in suspension pending the completion of this evaluation may be released to re-start based on completion of corrective actions to the extent identified in the Justification for restart of Work.

N. E. Lewis Construction Supervisor
Investigator Title

20 Jul 94
Date

Steve Hicks
Project Manager Review and Concurrence

7/22/94
Date

cc: MK-FIC
W. H. Holbombe, Deputy General Manager, Operations
E. E. Johnson, ES&H Director
Project Manager F. E. Hicks
Site Manager G. W. Keith
Project Safety Manager S. R. Gamache
Subcontract Administrator N/A
Construction Supervisor N. E. Lewis/D. G. Albrethsen

Operating Contractor
A. Wilson
A. D. Rodgers

DOE-ID
DOE-ID Site Manager M. R. Anderson/MS 8108
W. B. Shigley/MS 1150
J. H. Heier/MS 4160
R. A. Taft/MS 4160
DOE PM S. D. Palomo/MS 4160

Subcontractor
N/A



Date 20 April 94 Time 3:15 pm Location Trunk DBF 742
Title F494 UST Removal / REPLACEMENT - TRUNK CREAKAGE DURING REMOVAL

J-1 598

Location: UST PBF-740 is located at the southwest side of building PBF/PER-601, Control Building Addition.

UST removal includes: Furnish labor, equipment and materials for performing excavation operations in clay gravelly mixed soils for removal of an existing 2,000 gallon steel petroleum UST installed in 1954. The UST and connecting piping is tar coated steel with no external cathodic protection. The UST is used to fuel a 324,000 BTU/HR heating and ventilation unit in PBF/PER-601, Control Building Addition.

UST replacement includes: A new 2,500 gallon double-wall Fiberglass Reinforced Plastic (FRP) UST shall be installed in the existing location. Piping with secondary containment, an overfill protection system, and a leak detection, monitoring and UST alarm system shall also be installed. The fill pipe and overfill protection shall be encased in concrete, and surface conditions shall be restored to original configuration where removed. Electrical underground concrete duct bank shall be installed along with a new grounding system. The Tank Monitoring Panel will have the capability for future communication with the existing site multiplex system (MIPS).

See Drawings 383956 through 383958 for removal/replacement requirements.

D. Location: UST PBF-742 is located at the southeast side of building PBF/PER-601, Control Building.

UST removal includes: Furnish labor, equipment and materials for performing excavation operations in clay gravelly mixed soils for removal of an existing 1,000 gallon steel petroleum UST installed in 1954. The UST and connecting piping is tar coated steel with no external cathodic protection. The UST is used to fuel a 210,000 BTU/HR heating and ventilation unit in PBF-601.

UST replacement includes: A new 1,000 gallon double-wall Fiberglass Reinforced Plastic (FRP) UST shall be installed in the existing location. Piping with secondary containment, an overfill protection system, and a leak detection, monitoring and UST alarm system shall also be installed. The fill pipe and overfill protection shall be encased in concrete, and surface conditions shall be restored to original configuration where removed. Electrical underground concrete duct bank shall be installed along with a new grounding system. The Tank Monitoring Panel will have the capability for future communication with the existing site multiplex system (MIPS).

See Drawings 383962 through 383964 for removal/replacement requirements.

Location: PBF-601, Tank #740 and Tank #742

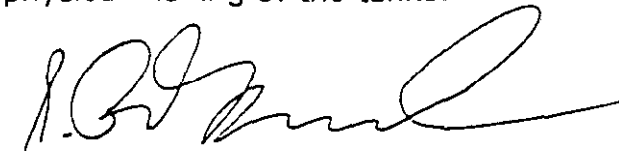
Date: July 15, 1994

Time: 1325 (#740) and 1510 (#742)

PBF-740 { The discovery of the diesel leak occurred prior to the planned removal of an underground storage tank (UST). Proper rigging equipment was secured around the ends of the tank and was in the process of being inspected by the construction safety supervisor, the construction supervisor, and workers, when one of the workers noticed moist, discolored soil under the end of the tank. Under direction of the construction safety supervisor, the UST was removed from the excavation to an area beside the excavation that was protected by a plastic tarp to allow examination of the tank and the excavation. A small pool of diesel fuel and/or sludge (approximately 2 gallons) was in the bottom of the excavation. The UST was not dripping or releasing and diesel and/or sludge. The UST remained in the temporary location for about fifteen minutes during which time there were no signs of leaking. While the UST was being removed from the excavation, workers placed absorbent material in the bottom of the excavation after the construction safety supervisor sampled the excavation atmosphere for LEL and O₂. Next the UST was moved to a prepared, plastic lined, buried pit. While the UST was being moved, a backhoe was used to remove saturated soil from the excavation to the plastic covered area next to the excavation. Notifications to Miscellaneous Projects Manager, ES&H Director, DOE Project Manager, DOE Facility Manager, and DOE ES&H were initiated.

PBF-742 { Because of the leak in tank #740, the construction safety supervisor determined that an evaluation of the second tank, tank #742 for leaks was necessary. Under direction, rigging equipment was secured around one end of the UST and it was raised high enough to visibly locate standing diesel (approximately 2 gallons). The team proceeded as before and removed the UST to examine signs of active leaking. Because no leaks or drips were observed for about fifteen minutes, the UST was moved to the prepared, plastic lined, buried pit. Workers used soil from the excavation to absorb the pool of diesel and/or sludge. Again, notifications were initiated. MK-FIC Industrial Hygienist determined that the USTs leaked most if not all of its contents prior to the excavation.

The DOE reportable for diesel is ten gallons; the Idaho reportable for diesel is 25 gallons; the Federal reportable for diesel is 100 gallons. These amounts are for spills and technically do not apply for leakage. The leakage was located prior to any physical moving of the tanks.



Stephen R. Gamache
MK Construction Safety Supervisor

ATTACHMENT 15

Summary of the ARA/PBF Groundwater Monitoring Data Collected April, 1995

The following is a brief summary of the ARA/PBF Groundwater Monitoring Data collected in April, 1995. The groundwater samples were collected by the Lockheed Martin Idaho Technologies, Inc. Environmental Monitoring Department in support of the INEL Groundwater Monitoring Program. The data are being presented and reviewed within Waste Area Group 5 to support the conclusions of the Operable Units 5-08 and 5-09 Track 2 Summary Reports that no adverse impact to the groundwater are anticipated from these sites. The data have not been validated following the Federal Facility Agreement/Consent Order because the data were collected outside of that agreement and were not planned for following the INEL Sample Management Office procedures.

General Water Quality Parameters - In general, all the parameters tested at the ARA/PBF wells were within the established ranges for the INEL and are considered to be acceptable. The results of the alkalinity, bicarbonate, specific conductance, total dissolved solids and pH all indicate that the groundwater is slightly hard (having dissolved minerals present, such as calcium and magnesium).

Radionuclides - No gamma-emitting radionuclides, Strontium-90 or tritium were detected at any of the ARA/PBF wells. Gross Alpha was detected at one well at PBF at 3.3 pCi/L, which is well below the Maximum Contaminant Level (MCL) of 15 pCi/L. Gross Beta was detected at low concentrations in every well at ARA/PBF at ranges of 2.74 to 3.87 pCi/L.

Volatile Organics - Several volatile organics were detected during the sampling at ARA and PBF, with different types detected at each location. This difference is likely related to the fact that the ARA wells were sampled and analyzed on separate days compared to the PBF wells.

Volatile organic contaminants detected in the ARA wells was only Acetone. Acetone was also detected in the Quality Control samples. Chloroform, Methylene Chloride, Bromodichloromethane and Carbon disulfide were also detected in the Quality Control samples but not in any groundwater sample. It should be noted that one Quality Control sample planned for in the Sampling and Analysis Plan was not analyzed. Apparently the laboratory received the sample and logged it in, but did not analyze it.

Volatile organic contaminants detected in the PBF wells were Methylene Chloride and toluene. Methylene Chloride was detected at concentrations above the MCL and toluene was well below the MCL. Methylene Chloride was also detected in the associated method blank(s) and Quality Control samples. Chloroform and Bromodichloromethane were also detected in the associated Quality Control samples.

Metals - Only Lead was detected above the MCLs in the groundwater from one ARA well. Beryllium was detected in the unfiltered groundwater samples in one PBF well above the 10-6 risk-based water concentrations (Cheat Sheets, EPA, 1992). Arsenic and Beryllium were both detected in the filtered ground water samples at PBF above the 10-6 risk-based water concentrations (Cheat Sheets, EPA, 1992).

J- 604

Analyses	ARA-MON-A-001 00295011	ARA-MON-A-001 00295012	ARA-MON-A-002 00295021	ARA-MON-A-003A 00295031	ARA-MON-A-004 00295041	ARA-QC Field Blank 00295051	ARA-QC Trip Blank 00295061	ARA-QC Trip Blank 00295062	Maximum Contaminant Levels	10 ⁻⁶ Risk-based Water Concentration (EPA)
Gross Alpha (pCi/L)	<3.0	<3.2	<2.9	<2.7	<6.3	N/A	N/A	N/A	15	N/A
Gross Beta (pCi/L)	3.62 ± 0.84	3.87 ± 0.88	3.62 ± 0.91	2.82 ± 0.81	2.94 ± 0.96	N/A	N/A	N/A	N/A	N/A
Sr-90 (pCi/L)	<0.58	<0.67	<0.59	<0.60	<0.61	N/A	N/A	N/A	8	N/A
Tritium (pCi/L)	<690.0	<690.0	<690.0	<700.0	<700.0	N/A	N/A	N/A	20,000	N/A
Gamma Spec (pCi/L)	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A
<u>Volatile Organics (µg/L)</u>										
Acetone	2 J	1 J	ND	ND	2 J	VOID	1 J	3 J	N/A	N/A
Chloroform	ND	ND	ND	ND	ND	VOID	30	30	N/A	0.4
Methylene Chloride	ND	ND	ND	ND	ND	VOID	1 J	ND	5.0	3.0
Bromodichloromethane	ND	ND	ND	ND	ND	VOID	4 J	4 J	N/A	0.6
Carbon Disulfide	ND	ND	ND	ND	ND	VOID	ND	1 J	N/A	N/A
<u>Total Metals (unfiltered) (µg/L)</u>										
Arsenic	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	N/A	N/A	50.0	0.05
Beryllium	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	N/A	N/A	4.0	0.02
Calcium	29700.0	37300.0	36400.0	37600.0	39300.0	33.5	N/A	N/A	N/A	N/A
Chromic	6.4	5.5	5.3	4.3	5.5	4.2 U	N/A	N/A	50.0	N/A
Iron	40.7	25.7	117.0	34.6	287.0	14.3	N/A	N/A	N/A	N/A
Lead	15.4	11.8	14.4	11.6	14.0	1.5 U	N/A	N/A	50.0	N/A
Magnesium	12400.0	15600.0	15000.0	15700.0	16300.0	48.10	N/A	N/A	N/A	N/A
Potassium	3010.0	3620.0	3450.0	3120.0	3720.0	1060.0	N/A	N/A	N/A	N/A
Sodium	1600.0	17700.0	17500.0	18500.0	18900.0	96.4	N/A	N/A	N/A	N/A
<u>Total Metals (filtered) (µg/L)</u>										
Arsenic	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	N/A	N/A	N/A	50.0	0.05
Beryllium	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	N/A	N/A	N/A	4.0	0.02
Calcium	35900.0	36200.0	34300.0	38500.0	41400.0	N/A	N/A	N/A	N/A	N/A

Analyses	PBF-MON-A-001 00295071	PBF-MON-A-001 00295072	PBF-MON-A-003 00295081	PBF QC Field Blank 00295091	PBF QC Trip Blank 00295101	Maximum Contaminant Levels	10 * Risk-based Water Concentration (EPA)
Gross Alpha (pCi/L)	3.3 ± 1.1	<2.5	<2.7	N/A	N/A	15	N/A
Gross Beta (pCi/L)	3.24 ± 0.73	3.20 ± 0.87	2.72 ± 0.69	N/A	N/A	N/A	N/A
Sr-90 (pCi/L)	<0.70	<0.71	<0.63	N/A	N/A	8	N/A
Tritium (pCi/L)	<690.0	<690.0	<690.0	N/A	N/A	20,000	N/A
Gamma Spec (pCi/L)	ND	ND	ND	N/A	N/A	N/A	N/A
<u>Volatile Organics (µg/L)</u>							
Methylene Chloride	3 JB	10 B	9 B	11 B	8 B	5.0	3.0
Toluene	ND	1 J	ND	ND	ND	1000.0	N/A
Chloroform	ND	ND	ND	33	ND	100	0.4
Bromodichloromethane	ND	ND	ND	4	ND	700	0.6
<u>Total Metals (unfiltered) (µg/L)</u>							
Arsenic	1.8 U	1.8 U	1.8 U	1.8 U	N/A	50.0	0.05
Beryllium	0.7 U	0.7 U	0.7 U	1.3	N/A	4.0	0.02
Calcium	28700.0	36400.0	35600.0	99.4	N/A	N/A	N/A
Chromium	4.2 U	6.3	10.0	4.2 U	N/A	50.0	N/A
Iron	167.0	252.0	35.2	12.4 U	N/A	N/A	N/A
Lead	10.2	20.8	4.2	1.5 U	N/A	50.0	N/A
Magnesium	11600.0	14900.0	13300.0	48.1 U	N/A	N/A	N/A
Potassium	2680.0	3530.0	2960.0	1060.0 U	N/A	N/A	N/A
Sodium	7900.0	9980.0	11600.0	284.0	N/A	N/A	N/A
<u>Total Metals (filtered) (µg/L)</u>							
Arsenic	2.50	1.8 U	1.8 U	N/A	N/A	50.0	0.05
Beryllium	1.30	1.3	1.3	N/A	N/A	4.0	0.02
Calcium	26100.0	36100.0	35700.0	N/A	N/A	N/A	N/A

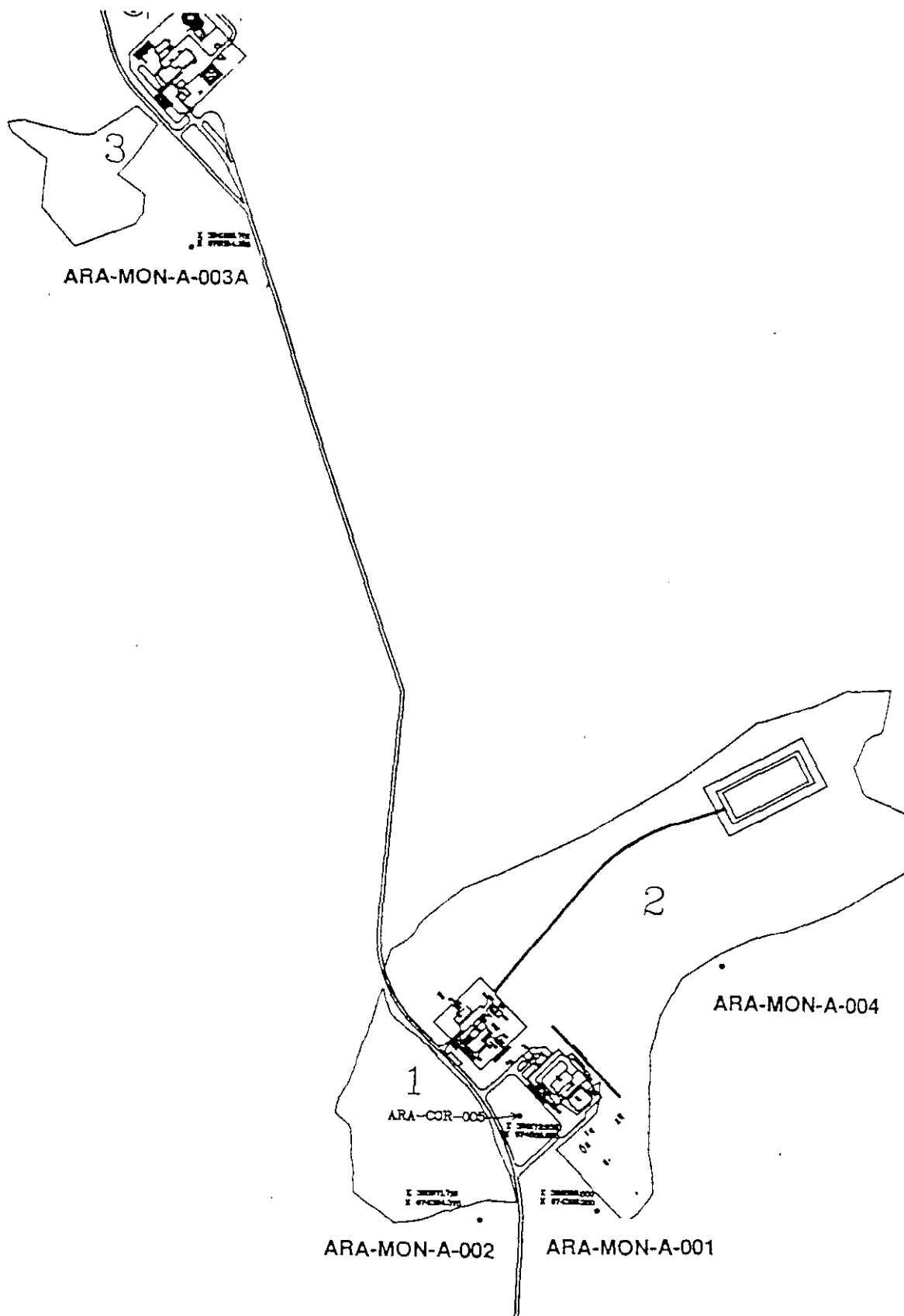


Figure 1.1: ARA wells

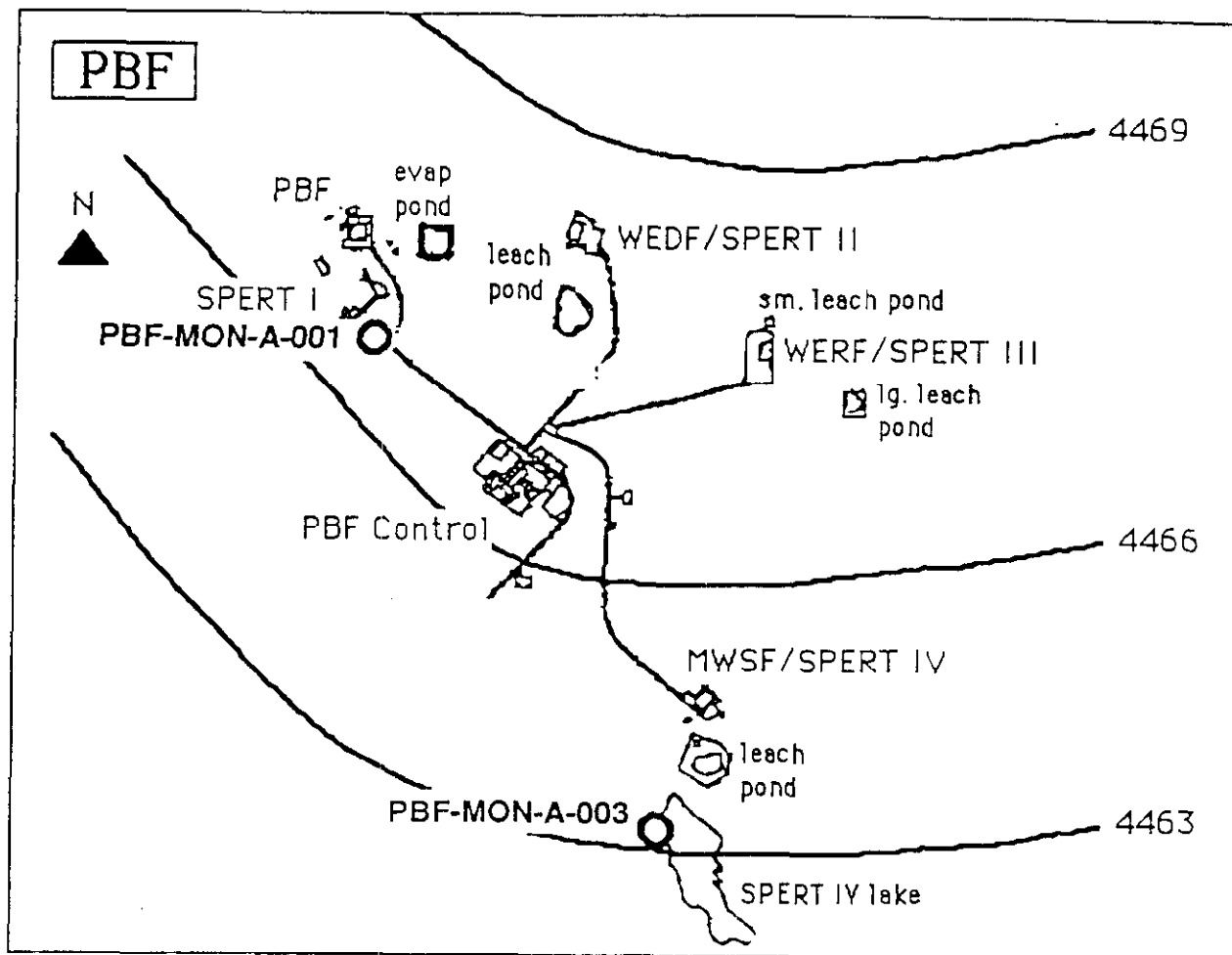


Figure 1.2: PBF wells

1A
VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

00295072VG

Lab Name: Rov F. Weston, Inc. Work Order: 10875002001

Client: LITCO-259

Matrix: WATER

Lab Sample ID: 9504L572-026

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: X4J17

Level: (low/med) LOW

Date Received: 04/14/95

% Moisture: not dec.

Date Analyzed: 04/19/95

Column: (pack/cap) CAP

Dilution Factor: 1.00

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

74-87-3-----	Chloromethane	10	U
74-83-9-----	Bromomethane	10	U
75-01-4-----	Vinyl Chloride	10	U
75-00-3-----	Chloroethane	10	U
75-09-2-----	Methylene Chloride	10	B
67-64-1-----	Acetone	10	U
75-15-0-----	Carbon Disulfide	5	U
75-35-4-----	1,1-Dichloroethene	5	U
75-34-3-----	1,1-Dichloroethane	5	U
540-59-0-----	1,2-Dichloroethene (total)	5	U
67-66-3-----	Chloroform	5	U
107-06-2-----	1,2-Dichloroethane	5	U
78-93-3-----	2-Butanone	10	U
71-55-6-----	1,1,1-Trichloroethane	5	U
56-23-5-----	Carbon Tetrachloride	5	U
108-05-4-----	Vinyl Acetate	10	U
75-27-4-----	Bromodichloromethane	5	U
78-87-5-----	1,2-Dichloropropane	5	U
10061-01-5-----	cis-1,3-Dichloropropene	5	U
79-01-6-----	Trichloroethene	5	U
124-48-1-----	Dibromochloromethane	5	U
79-00-5-----	1,1,2-Trichloroethane	5	U
71-43-2-----	Benzene	5	U
10061-02-6-----	Trans-1,3-Dichloropropene	5	U
75-25-2-----	Bromoform	5	U
108-10-1-----	4-Methyl-2-pentanone	10	U
591-78-6-----	2-Hexanone	10	U
127-18-4-----	Tetrachloroethene	5	U
79-34-5-----	1,1,2,2-Tetrachloroethane	5	U
108-88-3-----	Toluene	1	J
108-90-7-----	Chlorobenzene	5	U
100-41-4-----	Ethylbenzene	5	U
100-42-5-----	Styrene	5	U
1330-20-7-----	Xylene (total)	5	U

GLOSSARY OF VOA DATA

DATA QUALIFIERS

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference.
- NQ = Result qualitatively confirmed but not able to quantify.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.

ATTACHMENT 16

Superfund



Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A)

Interim Final

not by the validator), then use the R-qualified data in a manner similar to the use of J-qualified data (i.e., use the R-qualified concentrations the same way as positive data that do not have this qualifier). If possible, note whether the R-qualified data are overestimates or underestimates of actual expected chemical concentrations so that appropriate caveats may be attached if data qualified with an R contribute significantly to the risk.

5.4.2 USING THE APPROPRIATE QUALIFIERS

The information presented in Exhibits 5-4 and 5-5 is based on the most recent EPA guidance documents concerning qualifiers: the SOW for Inorganics and the SOW for Organics (EPA 1988b,c) for laboratory qualifiers, and the Functional Guidelines for Inorganics and the Functional Guidelines for Organics (EPA 1988d,e) for validation qualifiers. The types and definitions of qualifiers, however, may be periodically updated within the CLP program. In addition, certain EPA regions may have their own data qualifiers and associated definitions. These regional qualifiers are generally consistent with the Functional Guidelines, but are designed to convey additional information to data users.

In general, the risk assessor should check whether the information presented in this section is current by contacting the appropriate regional CLP or headquarters Analytical Operations Branch staff. Also, if definitions are not reported with the data, regional contacts should be consulted prior to evaluating qualified data. These variations may affect how data with certain qualifiers should be used in a risk assessment. Make sure that definitions of data qualifiers used in the data set for the site have been reported with the data and are current. Never guess about the definition of qualifiers.

5.5 COMPARISON OF CONCENTRATIONS DETECTED IN BLANKS WITH CONCENTRATIONS DETECTED IN SAMPLES

Blank samples provide a measure of contamination that has been introduced into a sample set either (1) in the field while the samples were being collected or transported to the laboratory or (2) in the laboratory during sample preparation or analysis. To prevent the inclusion of non-site-related contaminants in the risk assessment, the concentrations of chemicals detected in blanks must be compared with concentrations of the same chemicals detected in site samples. Detailed definitions of different types of blanks are provided in the box on the next page.

Blank data should be compared with results from samples with which the blanks are associated. It is often impossible, however, to determine the association between certain blanks and data. In this case, compare the blank data with results from the entire sample data set. Use the guidelines in the following paragraphs when comparing sample concentrations with blank concentrations.

Blanks containing common laboratory contaminants. As discussed in the CLP SOW for Organics (EPA 1988c) and the Functional Guidelines for Organics (EPA 1988e), acetone, 2-butanone (or methyl ethyl ketone), methylene chloride, toluene, and the phthalate esters are considered by EPA to be common laboratory contaminants. In accordance with the Functional Guidelines for Organics (EPA 1988e) and the Functional Guidelines for Inorganics (EPA 1988d), if the blank contains detectable levels of common laboratory contaminants, then the sample results should be considered as positive results only if the concentrations in the sample exceed ten times the maximum amount detected in any blank. If the concentration of a common laboratory contaminant is less than ten times the blank concentration, then conclude that the chemical was not detected in the particular sample and, in accordance with EPA guidance, consider the blank-related concentrations of the chemical to be

REFERENCES FOR CHAPTER 5

Environmental Protection Agency (EPA). 1984. Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (EPA 600 Methods) as presented in 40 CFR Part 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act.

- Used to determine chemicals present in municipal and industrial wastewater as provided under the Clean Water Act. Analytical methods for priority pollutants, including sample preparation, reagents, calibration procedures, QA/QC analytical procedures, and calculations.

Environmental Protection Agency (EPA). 1986. Test Methods for Evaluating Solid Waste (SW-846): Physical/Chemical Methods. Office of Solid Waste.

- Provides analytical procedures to test solid waste to determine if it is a hazardous waste as defined under RCRA. Contains information for collecting solid waste samples and for determining reactivity, corrosivity, ignitability, composition of waste, and mobility of waste components.

Environmental Protection Agency (EPA). 1987. Drinking Water: Proposed Substitution of Contaminants and Proposed List of Additional Substances Which May Require Regulation Under the Safe Drinking Water Act. 52 Federal Register 25720 (July 8, 1987).

Environmental Protection Agency (EPA). 1988a. User's Guide to the Contract Laboratory Program. Office of Emergency and Remedial Response.

- Provides requirements and analytical procedures of the CLP protocols developed from technical caucus recommendations for both organic and inorganic analysis. Contains information on CLP objectives and orientation, CLP structure, description of analytical services, utilization of analytical services, auxiliary support services, and program quality assurance.

Environmental Protection Agency (EPA). 1988b. Contract Laboratory Program Statement of Work for Inorganics Analysis: Multi-media, Multi-concentration. Office of Emergency and Remedial Response. SOW No. 788.

- Provides procedures required by EPA for analyzing hazardous waste disposal site samples (aqueous and solid) for inorganic chemicals (25 elements plus cyanide). Contains analytical, document control, and quality assurance/quality control procedures.

Environmental Protection Agency (EPA). 1988c. Contract Laboratory Program Statement of Work for Organics Analysis: Multi-media, Multi-concentration. Office of Emergency and Remedial Response. SOW No. 288.

- Provides procedures required by EPA for analyzing aqueous and solid hazardous waste samples for 126 volatile, semi-volatile, pesticide, and PCB chemicals. Contains analytical, document control, and quality assurance/quality control procedures.

Environmental Protection Agency (EPA). 1988d. Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis. Office of Emergency and Remedial Response.

- Provides guidance in laboratory data evaluation and validation for hazardous waste site samples analyzed under the EPA CLP program. Aids in determining data problems and shortcomings and potential actions to be taken.

Environmental Protection Agency (EPA). 1988e. Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis (Functional Guidelines for Organics). Office of Emergency and Remedial Response.

- Provides guidance in laboratory data evaluation and validation for hazardous waste site samples analyzed under the EPA CLP program. Aids in determining data problems and shortcomings and potential actions to be taken.

Environmental Protection Agency (EPA). 1988f. Special Report on Ingested Inorganic Arsenic; Skin Cancer; Nutritional Essentiality. Risk Assessment Forum. EPA 625/3-87/013.

- Technical report concerning the health effects of exposure to ingested arsenic. Includes epidemiologic studies suitable for dose-response evaluation from Taiwan, Mexico, and Germany. Also includes discussions on pathological characteristics and significance of arsenic-induced skin lesions, genotoxicity of arsenic, metabolism and distribution, dose-response estimates for arsenic ingestion and arsenic as an essential nutrient.

